

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was **not** written for publication in a law journal and (2) is **not** binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* ELFRIEDE SEXTL, ECKEHART ROLAND, PETER KLEINSCHMIT  
and AKOS KISS

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Appeal No. 1997-1549  
Application No. 08/208,143

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ON BRIEF

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Before OWENS, KRATZ and DELMENDO, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 1, 2 and 4-21, which are all of the claims remaining in the application.

INVENTION

Appellants' claimed invention is directed toward a method for removing organic material from exhaust air and/or

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effluents by use of a fixed bed containing a molded body  
comprising a

dealuminated zeolite Y and at least one binder. Claim 1 is  
illustrative and reads as follows:

1. A method for the removal of organic material from exhaust air and/or effluents, said method comprising contacting said air and/or said effluents in a fixed bed with a moulded body as fixed bed adsorber, wherein said moulded body has a breaking strength of 10 to 150 N; wherein said moulded body comprises dealuminated zeolite Y and at least one binder and having a hydrophobic factor of from 1.5 to 6.0, wherein a slurry of said binder in water does not exceed a pH of 10; and wherein said moulded body is produced by a process comprising mixing pulverulent dealuminated zeolite Y with at least one binder, optionally with the addition of a lubricant and/or a pore former, and optionally with water or an organic solvent, moulding by granulation or extrusion of the resulting kneadable mass to form a moulded body, and drying and calcining at 850° to 1100°C said moulded body.

#### *THE REFERENCES*

Plank et al. (Plank) 1964	3,140,249	Jul. 7,
Gloffre et al. (Gloffre) 1989	0 297 543	Jan. 4,
(European patent application)		
Hakansson 1990	WO 90/09235	Aug. 23,
(PCT application)		

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#### *THE REJECTIONS*

Claims 1 and 21 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellants regard as the invention. Claims 1, 2 and 4-21 stand rejected under 35 U.S.C. § 103 as being unpatentable over Gloffre in view of Hakansson and Plank.

#### *OPINION*

We have carefully considered all of the arguments advanced by appellants and the examiner and agree with appellants that the aforementioned rejections are not well founded. Accordingly, we reverse these rejections.

#### *Rejection under 35 U.S.C. § 112, second paragraph*

The relevant inquiry under 35 U.S.C. § 112, second paragraph, is whether the claim language, as it would have been interpreted by one of ordinary skill in the art in light of appellants' specification and the prior art, sets out and circumscribes a particular area with a reasonable degree of precision and particularity. See *In re Moore*, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971).

The examiner argues that "it is not clear how limitations drawn to a method for manufacturing the molded body imparts a positive step in the claimed method for removing organic material from exhaust air or why it is critical to recite limitations drawn to a method for making a molded body in a claim directed to removing organic material from exhaust gas" (answer, pages 3-4).

The examiner, however, does not explain why the claim language, as it would have been interpreted by one of ordinary skill in the art in light of appellants' specification and the prior art, fails to set out and circumscribe a particular area with a reasonable degree of precision and particularity. Consequently, we reverse the rejection under 35 U.S.C. § 112, second paragraph.

*Rejection under 35 U.S.C. § 103*

Gloffre discloses a method for essentially eliminating odors of certain odorous organic compounds by use of aluminosilicate molecular sieves which can be dealuminated zeolite Y (page 3, lines 15-21; page 5, lines 14-19). The molecular sieves can be incorporated into products such as body powders and sprays, cat litter, diapers, hand creams,

mouthwash and tissues, or can be used to treat odors in household areas (page 5, lines 55-58). Gloffre teaches that the molecular sieves can be in shaped forms, i.e., monoliths, but does not discuss how the shaped forms are made (page 5, lines 53-55).

Hakansson discloses a method for making a cellular body for adsorption of preferably organic substances in purification plants (abstract). The cellular body is made by binding layers, preferably layers of inorganic artificial fibers such as glass fibers, by impregnating the layers with a sludge made of hydrophobic zeolite and an inorganic binder, and heating the impregnated body at a temperature at which sintering of the constituents begins to occur (page 2, lines 1-8 and 26-29; page 3, lines 1-6). The zeolite can be a dealuminized zeolite, and the inorganic binder includes clay (page 3, lines 16-19). When the clay is a kaolin-type clay of an alkaline nature or alkaline additives are used with the clay, "the pH value should be as high as possible without the hydrophobic properties of the zeolite being negatively affected" (page 3, lines 20-23). The impregnated cellular body "is fired at a temperature causing sintering together of

the constituents in the impregnated cellular structure and preferably at a temperature at which any ability of the binder to absorb water is successively reduced, e.g. at least 500-600EC" (page 3, lines 34-38).

Plank discloses a catalytic cracking catalyst made by mixing a finely divided aluminosilicate and a siliceous hydrogen such that the aluminosilicate is distributed throughout and held in suspension in a matrix of the siliceous hydrogel and the mixture is thermally activated at approximately 500-1500EF (260-816EC) (col. 3, lines 30-40 and 54-67).

Appellants' claim 1, which is the sole independent claim, requires, *inter alia*, that the molded body has a breaking strength of 10-150 N. Appellants argue that "[t]he Examiner has pointed to nothing in the prior art which suggests that a moulded body calcined at 850EC to 1100EC would have the breaking strength of 10 to 150 N" (brief, page 15). The examiner argues as follows (answer, pages 12-13):

No distinction is seen between a temperature that is at least 500-600EC as set forth on page 3 lines 36-38 of the Hakansson reference and a temperature ranging from 850 to 1100 EC as argued by

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the appellants. Particularly since the Hakansson reference on pg. 3 lines 35-38 teaches that temperatures should be employed which reduce the ability of the binder to absorb water - which appears to be the same reason mentioned by the appellants on pg. 4 line 25 to pg. 5 line 2 of the appellants' specification. The determination of suitable temperatures above 500 to 600 EC is a matter of routine optimization.

The examiner's argument that appellants appear to calcine the molded body at a temperature of 850-1100EC to reduce the ability of the binder to absorb water does not appear to be supported by the record. The portion of appellants' specification relied upon by the examiner teaches that the calcining is decisive in determining the mechanical properties of the molded body such as the breaking strength and porosity, and that the calcining also influences the hydrophobic character of the molded body. Thus, the specification indicates that the calcining temperature is selected to be that which gives the desired mechanical properties, rather than being that which best reduces the ability of the binder to absorb water. It is not apparent why, even if one of ordinary skill in the art were to optimize Hakansson's sintering temperature to best reduce the ability of the binder to absorb water, as proposed by the examiner, such a person

would have arrived at the sintering temperature range which appellants use to obtain the desired mechanical properties.

Also, the cellular structure being sintered by Hakansson includes layers of inorganic fibers. Such fibers are not excluded by appellants' claims, but are not disclosed as being part of the molded body which has the recited breaking strength. The examiner has not explained why, even if Hakansson's cellular structure containing these fibers were sintered at 850-1100EC, the resulting product would have a breaking strength of 10 to 150 N. Furthermore, even if the applied references were considered to have suggested, to one of ordinary skill in the art, eliminating these inorganic fibers and using only the clay as Gloffre's binder, the examiner has not explained why such a person would have considered the same temperature range used by Hakansson when the fibers are present to also be the temperature range to use when the fibers are absent.

The examiner argues that if Gloffre's zeolite were calcined at Plank's temperature, the breaking strength would be the same as that of appellants (answer, page 7). This argument is not well taken because the examiner has provided



no convincing reasoning as to why one of ordinary skill in the art would have been led by the applied references to use Plank's temperature, which is an activation temperature for a cracking catalyst, as the temperature used for forming Gloffre's shaped molecular sieves. The examiner argues that Plank is directed toward an adsorbent composition (answer, page 12), but this is not correct. What Plank discloses is a cracking catalyst (col. 1, lines 14-16). Moreover, the highest temperature disclosed by Plank is 1500<sup>EF</sup> (816<sup>EC</sup>). The examiner has not explained why calcining Gloffre's molecular sieves at this temperature would produce the breaking strength obtained by appellants at 850-1100<sup>EC</sup>.

For the above reasons, we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the invention recited in any of appellants' claims. Accordingly, we reverse the examiner's rejection under 35 U.S.C. § 103.

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*DECISION*

The rejections of claims 1 and 21 under 35 U.S.C. § 112,  
second paragraph, and claims 1, 2 and 4-21 under 35 U.S.C.  
§ 103 over Gloffire in view of Hakansson and Plank, are  
reversed.

*REVERSED*

TERRY J. OWENS	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
	)	BOARD OF PATENT
PETER F. KRATZ	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	
	)	
ROMULO H. DELMENDO	)	
Administrative Patent Judge	)	

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